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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
MINSKEY, JACOB T	

ART UNIT	PAPER NUMBER
1791	

NOTIFICATION DATE	DELIVERY MODE
01/09/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/553,075	Applicant(s) WIESE ET AL.	
	Examiner JACOB T. MINSKEY	Art Unit 1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>02/13/2006</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT.
- (e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC.
- (f) BACKGROUND OF THE INVENTION.
 - (1) Field of the Invention.
 - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (g) BRIEF SUMMARY OF THE INVENTION.
- (h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (i) DETAILED DESCRIPTION OF THE INVENTION.
- (j) CLAIM OR CLAIMS (commencing on a separate sheet).
- (k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
- (l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

Applicant is reminded of the proper content of an abstract of the disclosure.

A patent abstract is a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains. If the patent is of a basic nature, the entire technical disclosure may be new in the art, and the abstract should be directed to the entire disclosure. If the patent is in the nature of an improvement in an old apparatus, process, product, or composition, the abstract should

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include the technical disclosure of the improvement. In certain patents, particularly those for compounds and compositions, wherein the process for making and/or the use thereof are not obvious, the abstract should set forth a process for making and/or use thereof. If the new technical disclosure involves modifications or alternatives, the abstract should mention by way of example the preferred modification or alternative.

The abstract should not refer to purported merits or speculative applications of the invention and should not compare the invention with the prior art.

Where applicable, the abstract should include the following:

- (1) if a machine or apparatus, its organization and operation;
- (2) if an article, its method of making;
- (3) if a chemical compound, its identity and use;
- (4) if a mixture, its ingredients;
- (5) if a process, the steps.

Extensive mechanical and design details of apparatus should not be given.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-4, 6, 9-11, 13-15, 17, 20-22, and 24 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Xue et al, WO 03000760 A1 as represented by its English equivalent USP 7,094,830 B2.

3. Regarding claim 1, Xue et al teach a process for the treatment of paper surfaces (column 18 line 10), wherein the surface of the paper is coated with particles (composite particles) which are composed of polymer and finely divided inorganic solid, the weight

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average particle size of the finely divided inorganic solid being ≤ 100 nm (column 4 lines 3-9 and 26-27).

4. Regarding claim 2, Xue remains as applied in claim 1 and further teaches that the composite particles are applied in the form of an aqueous composite particle dispersion to the paper (column 4 lines 10-19 and column 18 line 10).

5. Regarding claim 3, Xue remains as applied in claim 2 and further teaches that the aqueous composite particle dispersion was prepared by a process in which at least one ethylenically unsaturated monomer is dispersed in an aqueous medium and polymerized by means of at least one free radical polymerization initiator in the presence of at least one dispersed, finely divided inorganic solid and at least one dispersant by the aqueous free radical emulsion polymerization method (column 4 lines 10-19), a) a stable aqueous dispersion of the at least one inorganic solid being used, which dispersion, with an initial solids concentration of $> 1\%$ by weight, based on the aqueous dispersion of the at least one inorganic solid, still contains more than 90% by weight of the originally dispersed solid in dispersed form one hour after its preparation and whose dispersed solid particles have a weight average diameter of ≤ 100 nm (see column 4 lines 20-27), b) the disperse solid particles of the at least one inorganic solid having an electrophoretic mobility which differs from zero (nonzero, column 4 line 29) in an aqueous standard potassium chloride solution at a pH which corresponds to the pH of the aqueous dispersing medium before the beginning of the addition of the dispersants (column 4 lines 28-32), c) at least one anionic, cationic and nonionic dispersant being added to the aqueous solid particle dispersion before the beginning of

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the addition of the at least one ethylenically unsaturated monomer (column 4 lines 33-36), d) thereafter from 0.01 to 30% by weight of the total amount of the at least one monomer being added to the aqueous solid particle dispersion and being polymerized to a conversion of at least 90% (column 4 lines 37-40) and e) the remaining amount of the at least one monomer then being added continuously under polymerization conditions at the rate at which it is consumed (column 4 lines 41-43).

6. Regarding claim 4, Xue teaches a process for the treatment of paper surfaces (column 18 line 10), wherein the surface of the paper is treated with an aqueous dispersion which is obtained by mixing an aqueous polymer dispersion with at least one dispersed, finely divided inorganic solid which has a weight average particle diameter of ≤ 100 nm (column 4 lines 48-59).

7. Regarding claim 6, Xue remains as applied in claim 1 and further teaches that the polymer can be formed into a film (column 17, line 63).

8. Regarding claim 9, Xue remains as applied in claim 1 and further teaches that the finely divided inorganic solid is at least one selected from the group consisting of silica, alumina, hydrated aluminum oxide, calcium carbonate, magnesium carbonate, calcium orthophosphate, magnesium orthophosphate, iron(II) oxide, iron(III) oxide, iron(II/III) oxide, tin oxide, cerium dioxide, yttrium(III) oxide, titanium dioxide, hydroxyapatite, zinc oxide and zinc sulfide (column 5 line 4 – column 6 line 22).

9. Regarding claim 10, Xue remains as applied in claim 1 and further teaches that the treated paper is subjected to pressures and/or temperatures such that the polymer forms a film (column 16 line 15 and column 18 line 10).

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10. Regarding claims 11, 13, 22, and 24, these claims are product by process claims, see MPEP § 2113. Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself (i.e., differences in product characteristics), and not on its method of production. In the present instance, all that is claimed is a paper, which is shown by Xue (column 18 line 10).

11. Regarding claim 14, Xue teaches a method of coating paper (column 18 line 10) comprising utilizing an aqueous dispersion of particles which are composed of polymer and finely divided inorganic solid, the weight average particle size of the finely divided inorganic solid being 100 nm (column 4 lines 48-59).

12. Regarding claim 15, Xue teaches a method of coating paper (column 18 line 10) comprising utilizing an aqueous dispersion which is obtained by mixing an aqueous polymer dispersion with at least one dispersed, finely divided inorganic solid which has a weight average particle diameter of 100 nm (column 4 lines 48-59).

13. Regarding claim 17, Xue remains as applied in claim 4 and further teaches that the polymer can be formed into a film (column 17, line 63).

14. Regarding claim 20, Xue remains as applied in claim 4 and further teaches that the finely divided inorganic solid is at least one selected from the group consisting of silica, alumina, hydrated aluminum oxide, calcium carbonate, magnesium carbonate, calcium orthophosphate, magnesium orthophosphate, iron(II) oxide, iron(III) oxide, iron(II/III) oxide, tin oxide, cerium dioxide, yttrium(III) oxide, titanium dioxide, hydroxyapatite, zinc oxide and zinc sulfide (column 5 line 4 – column 6 line 22).

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15. Regarding claim 21, Xue remains as applied in claim 4 and further teaches that the treated paper is subjected to pressures and/or temperatures such that the polymer forms a film (column 16 line 15 and column 18 line 10).

Claim Rejections - 35 USC § 103

16. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

17. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

18. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

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consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

19. Claims 5, 7, 12, 16, 18, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Xue et al, WO 03000760 A1 as represented by its English equivalent USP 7,094,830 B2 in view of Auhorn et al, USP 4,908,240.

20. Regarding claims 5 and 16, Xue remains as applied previously, and while teaches the use of the solution to treat paper (column 18 line 10), Xue does remain silent on the ratios of solution to product to use in the treatment.

21. In the same field of endeavor of treating paper, Auhorn et al teach that the amount of composite particles or of a mixture of dispersion polymer and finely divided inorganic solid is from 0.1 to 100 g/m² of paper (0.5-4, abstract and claim 1).

22. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine Auhorn's ratios in the Xue method for the benefit of using a smaller amount of solution to produce a lighter paper with good printability (column 9 lines 3-8).

23. Regarding claims 7 and 18, Xue remains as applied previously, and while teaches the use of the solution to treat paper (column 18 line 10), Xue does not explicitly teach that the paper used is a base paper.

24. In the same field of endeavor of treating paper, Auhorn et al teach that the paper is a base paper (any raw paper which is uncoated and has not been subjected to any other conversion, column 2 lines 22-34).

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25. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine Auhorn's use of a base paper in the Xue method for the benefit of treating a paper that not been previously treated to obtain maximum effect by the current treatment.

26. Regarding claims 12 and 23, Xue remains as applied previously, and while teaches the use of the solution to treat paper (column 18 line 10), Xue does not explicitly teach that the method of printing paper in the offset, flexographic and gravure printing process.

27. In the same field of endeavor of treating paper, Auhorn et al teach that the method of printing paper in the offset, flexographic and gravure printing process (coated papers, column 9 line 20).

28. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine Auhorn's use of the offset printing process in the Xue method for the benefit of processing the paper in a the common and known methods for producing a smooth paper that can be used for a wide variety of purposes.

29. Claims 8 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Xue et al, WO 03000760 A1 as represented by its English equivalent USP 7,094,830 B2 in view of Nelson, USP 4,198,471

30. Regarding claims 8 and 19, Xue remains as applied previously, and while teaches the use of the solution to treat paper (column 18 line 10), Xue does not explicitly teach that the paper used is a coated or sized paper.

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31. In the same field of endeavor of treating paper, Nelson teaches that the paper treated by an aqueous solution including inorganic partials is a coated or sized paper (column 4 line 12).

32. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine Nelson's use of a sized paper in the Xue method for the benefit of treating a paper that has been sized to control the paper's water absorbency and printability.

Double Patenting

33. A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

34. Claim 3 is rejected under 35 U.S.C. 101 as claiming the same invention as that of claim 1 of prior U.S. Patent No. 7,094,830. This is a double patenting rejection.

Instant application	USP 7,094,830
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<p>35. Claims 1-3</p> <p>36. A process for the treatment of paper surfaces, wherein the surface of the paper is coated with particles which are composed of polymer and finely divided inorganic solid, the weight average particle size of the finely divided inorganic solid being ≤ 100 nm.</p> <p>37. The process as claimed in claim 1, wherein the composite particles are applied in the form of an aqueous composite particle dispersion to the paper.</p> <p>38. The Process as claimed in claim 2 and further teaches that the aqueous composite particle dispersion was prepared by a process in which at least one ethylenically unsaturated monomer is dispersed in an aqueous medium and polymerized by means of at least one free radical polymerization initiator in the presence of at least one dispersed, finely divided inorganic solid and at least one</p>	<p>Claim 1</p> <p>A process for preparing an aqueous dispersion of particles, said particles comprising at least one addition polymer and at least one finely divided inorganic solid, said process comprising dispersing at least one ethylenically unsaturated monomer in an aqueous medium and polymerizing the monomer by free-radical aqueous emulsion polymerization with at least one free-radical polymerization initiator in the presence of at least one dispersely distributed, finely divided inorganic solid and at least one of each of an anionic, cationic and nonionic dispersant, wherein</p> <p>a) the at least one finely divided inorganic solid is present as a stable aqueous dispersion that when prepared at an original solids concentration of $\geq 1\%$ by weight, based on the aqueous dispersion of said at least one finely</p>
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<p>dispersant by the aqueous free radical emulsion polymerization method,</p> <p>39. a) a stable aqueous dispersion of the at least one inorganic solid being used, which dispersion, with an initial solids concentration of $> 1\%$ by weight, based on the aqueous dispersion of the at least one inorganic solid, still contains more than 90% by weight of the originally dispersed solid in dispersed form one hour after its preparation and whose dispersed solid particles have a weight average diameter of ≤ 100 nm,</p> <p>40. b) the disperse solid particles of the at least one inorganic solid having an electrophoretic mobility which differs from zero in an aqueous standard potassium chloride solution at a pH which corresponds to the pH of the aqueous dispersing medium before the beginning of the addition of the dispersants,</p> <p>41. c) at least one anionic, cationic and</p>	<p>divided inorganic solid, the dispersion contains in dispersed form one hour after preparation more than 90% by weight of the originally dispersed finely divided inorganic solid and the dispersed finely divided inorganic solid particles have a diameter ≤ 100 nm, and</p> <p>b) the dispersed particles of said at least one inorganic solid exhibit a nonzero electrophoretic mobility in an aqueous standard potassium chloride solution at a pH which corresponds to the pH of the aqueous reaction medium before the addition of the anionic, cationic or nonionic dispersants, said process further comprising</p> <p>c) adding at least one of each of an anionic, cationic and nonionic dispersant to the aqueous dispersion of the finely divided inorganic solid before beginning dispersing said at least one ethylenically unsaturated monomer therein,</p>
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<p>nonionic dispersant being added to the aqueous solid particle dispersion before the beginning of the addition of the at least one ethylenically unsaturated monomer,</p> <p>42. d) thereafter from 0.01 to 30% by weight of the total amount of the at least one monomer being added to the aqueous solid particle dispersion and being polymerized to a conversion of at least 90% and</p> <p>43. e) the remaining amount of the at least one monomer then being added continuously under polymerization conditions at the rate at which it is consumed.</p>	<p>d) then adding from 0.01 to 30% by weight of the total amount of said at least one monomer to the aqueous dispersion and polymerizing to a conversion of at least 90%, and</p> <p>e) thereafter adding the remainder of said at least one monomer under polymerization conditions at the rate at which it is consumed.</p>
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Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JACOB T. MINSKEY whose telephone number is (571)270-7003. The examiner can normally be reached on Monday to Friday 7:30-5:00 EST.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Steven P. Griffin/
Supervisory Patent Examiner, Art
Unit 1791

JTM